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AGAR-AGAR: A NEW SUBSTITUTE FOR GELATINE, ALBUMEN, AND COLLODION.[1]

BY JULIUS F. SACHSE.

WASSILY REBIKOW, of St. Petersburg, in his application to the Imperial German Patent Office (D. R. P., No. 56,573) states:

The present discovery consists mainly in the application of a species of sea-weed, known as agar-agar as a substitute for gelatine and albumen in the production of emulsions, plates, sensitive papers, and similar preparations which are applied in the various processes of modern photography.

One of the properties of a weak (¼ to 2 per cent.) solution of agar-agar, thickened to a jelly, is that it permits the water to be squeezed from it like a sponge, after which the residue will still contain eight parts of water to one of agar-agar.

The muddiness appearing when the agar-agar is being dissolved can generally be removed by simple filtration; if not, it may be done in the following manner:

After a boiling solution has cooled to 80°, it is heated to the boiling point and again cooled. This process is to be repeated until the turbid particles combine and form yellow flakes or lumps, which remain suspended in the clear solution.

The weaker the solution, or the oftener the solution is alternately heated and cooled, the less the gravity of the flakes.

Another peculiarity is that these flakes gather into lumps in

[1] A free translation from the German in *Photographische Nachrichten*.

such portions of the containing vessel which is subjected to the greatest heat; consequently, when a cylinder filled with a cooled agar-agar solution in which the flakes have already conglomerated is dipped into hot water, about one-third of its height, the lumps will gradually settle to the bottom, when it becomes an easy matter to separate the clear liquid by decanting or with the aid of a siphon.

The same result may also be reached in another manner, which rests upon the observation that the finest particles, such as cannot be removed by filtration, have the peculiarity of attaching themselves to foreign bodies held in suspension in the solution; consequently, if small pieces of wet boiled filtering paper, or a similar fibrous substance, is thrown into a hot agar-agar solution, the turbidity gradually settles to the bottom with the foreign bodies introduced, after which the solution can be decanted and filtered.

Agar-agar solution which has not been cleared or refined as above is of no use in the preparation of sensitive emulsions, as the turbid particles have a tendency to cause fog formations.

Further, these flakes have the peculiarity of absorbing the bromine and chlorine with such avidity, during the preparation of the emulsion, that they reduce the bromide of silver to bromide, and thus spoil the emulsion, and thereby cause the tendency to fog.

To prepare an emulsion with agar-agar, the latter is first treated with a weak solution of bromide or chloride, as the may be (by ruby light). This mixture is then to be carefully washed in several waters, so as to remove in a dialytic manner such substances soluble in cold water.

For a bromide-of-silver emulsion, bromizing is preferable, while for a chloride-of-silver emulsion it is best first to chlorize the agar-agar.

Agar-agar solution treated in this manner, and then strained through flannel, can be used for the preparation of light-sensitive emulsions, after any of the well-known formulæ. It works equally well with the ammonia or with the boiling, maceration, or digestion processes.

In view of the difficulties met with in the use of thick, pulpy solutions (10 per cent.), it is advisable to use no solution which contains more than two per cent. of agar-agar, as even with this low percentage the mass is of a syrupy consistency.

If the boiling process is used, it is advisable to use a liquid emulsion of greater strength in bromide.

With the ammonia process the best results are obtained when a comparatively stiff emulsion is used which contains an excess of silver.

SPECIFICATIONS IN THE PATENT.

The process by which agar-agar solution is cleared and made applicable for light-sensitive emulsions consists in repeatedly heating and cooling an aqueous solution of agar-agar, which is afterwards decanted, or in which the turbidity is removed by means of the introduction of foreign matters, such as boiled filtering paper, hygroscopic wadding, or other fibrous substances.

. . . . . .

A German correspondent of the *Photographic News* in commenting upon above claim of M. Rebikow, states:—"The idea of employing this article (agar-agar) as a substitute for gelatine —it has long been used for culinary purposes—in photography is by no means a new one. About fifteen years ago the suggestion was made to employ the material in the collotype process, and at that time I myself conducted some experiments with it with a view to see how it would answer as a vehicle for the salts of silver in the negative process, chiefly for dry plates, in place of gelatine. The results of my experiments were, however, not encouraging. In the first place, the agar-agar proved to be exceedingly difficult to dissolve, even in boiling water, then I found that it decomposed the silver salts exceedingly fast in the dark, so that a carefully washed plate did not even keep well until it was dry. In fixing such plates after development with an acetic acid pyro developer, the iodobromide of silver film was scarcely to be removed by the aid of any of the well-known fixing agents. Even cyanide of potassium and a hot concentrated solution of hypo were but partly successful in dissolving out the haloid salts from the envelope of agar-agar by which they were

surrounded. Finally, I was never able to cover a plate, even if heated, uniformly with agar-agar solution, on account of its sudden setting. Even if an almost boiling solution of the material was employed, I did not obtained a perfectly even layer. Considering the above-mentioned difficulties arising by the employment of agar-agar solutions, it seems to be doubtful whether the patented process offers any advantage over the use of gelatine solutions in emulsion-making.

In conclusion we may add here the observations of V. Schumann with regard to the same subject which this eminent investigator published some time ago in the *Photo. Wochenblatt* (Vol. XI., p. 164). He writes:—"Agar-agar bromide emulsion is sensitive from about 6½ F. up to the ultra-violet, much like the gelatino-bromide emulsion, the lines being clear. Agar-agar emulsion shows scarcely any tendency to adhere to the glass plate, except at the edges. The plates are entirely matt. Some emulsion poured on glass, dried, then washed and again dried, was totally fogged, though it gave a weak image of the spectrum at an exposure of fifteen minutes (paraffin lamp). Agar-agar soaked with ammonium bromide and cooked dissolved little or none at all. Agar-agar cooked for a longer time, after the addition of bromide, emulsified, and poured at once unwashed on the plate, gave, when the plate, after washing, was treated slightly with alcohol, a rather good negative, provided it was not washed. In the bath following the fixing bath, the agar-agar film left the glass plate, and was lost beyond recovery."

A Photographer's Progress.—Jones—"I saw your son in the country yesterday."

Brown—"Yes; he went out to try his new camera. How was he getting along with it?"

Jones—"At a very rapid pace when I saw him. A farmer who objected to being photographed had set the dogs on him."—*Munsey's Weekly.*

HINTS FOR BEGINNERS.

BY XANTHUS SMITH.

AS the work of the amateur, untrained in the principles of art, comes under observation, one cannot help deploring the flagrant violations of good taste and of the rules of art which one sees exhibited.

It may be said, truly enough, that the majority of those enthusiastic people who fire away with a camera at anything and everything which comes before them, knowing no better, are amply gratified with the result of their work; and, therefore, what difference does it make whether their pictures are execrable in the eyes of better-trained persons or not? But then, on the other hand, photography is so much an artistic pursuit that it should always as far as possible be made a means of art training; or at least it should be felt that the time and pains bestowed upon it not only deserve, but demand a certain amount of attention to the leading rules of good taste in the constituency of a picture. The inseparable obstacle of the distortion of objects and scenes by the lenses necessarily used in photographic viewing, primarily necessitates a certain amount of attention in the arrangement of groups and the points of view, and while this is occupying the attention not very much more would be required to secure that grouping or symmetrical bringing together of objects which would gratify the observer in the finished picture. In the very important matter, too, of the light and dark of the subject so much might be done that is not by the beginner to see that the light falls upon the subject in such a manner as to show it to the very best advantage. Why should we look at the scene which we are about to take, directly with the light, when we know that our picture must depend for its beauty upon the masses of shadow which are to contrast and give brilliancy to our lights? Or, again, why should we photograph a scene in which the objects that constitute it are scattered in innumerable spots or patches of light and dark all over our subject? This, let us assure the beginner, can never result in anything but distraction to the observer. If we cannot get a quiet mass of shadow as a passage

of repose in a picture, or a broad, unbroken flow of light to give brilliancy and effect, we had better let the subject alone.

It is a very common occurrence with young artists that they will work for hours, even sometimes days, upon a study from nature, faithfully copying everything that they see before them, and hoping, as each stage of their work advances, for success, yet only meeting with disappointment, until the completion, when they find themselves overwhelmed with unhappiness and disgust. One of better judgment or possessing more knowledge, will have gone to the same vicinity, and selecting a proper point of view so as to bring his subjects into groups, and securing a lighting that gives repose to some passages and relief to others will have made a study in one quarter the time occupied by his less fortunate predecessor, that will attract the attention and delight the eyes of all who may happen to see it.

Many there are who have received considerable training as artists, and can draw and paint very well, but who from a want of natural taste or training in the proper direction are incapable of selecting agreeable scenes when they go forth to reproduce nature. Such persons are more likely than not to seat themselves before the most commonplace objects, and attempt to make pictures of views totally devoid of anything possessing either beauty or sentiment. This is a great mistake, for although the present prevailing fashion for French art, which is universally devoid of good selection or high aim, gives some pretext for producing bad pictures, it must be remembered that we humble workers in this country must rely on something more than a great French name to give interest to our pictures; and moreover the rage for bad French art is a mere craze of the day, and if we want to produce work that will be lasting in its source of excellence, we must select that which is really interesting and beautiful in nature.

Let us, then, always find features out of the usual and commonplace. Do we find poets singing of turnpike roads near cities, with wire fences and planted-out maples and brick kilns? No, nor of cleaned-up hedgerows and ditched brooks. But, on the other hand, their themes are of untouched nature in her untrodden haunts.

In securing interesting scenes and features in nature as the subjects for our pictures, we gain half the battle at the outset, for as we cannot always get our groups to come into just the places we would wish, and our light and shadow to fall with the best effect, we will at least have the interest of the subject to carry us through. When we are so fortunate as to secure an interesting scene, and are able to get a point of view so that the features composing it come well in groups, and the light and shadow give us agreeably formed masses, what a triumph we attain in the way of a work of art!

The advantages of good grouping and light and shadow are more strikingly apparent, and we may almost say more important, in a photograph, to make it attractive, than in a painting, because in the latter a brilliant and harmonious effect of coloring may attract the eye and give pleasure, and in a great measure atone for other shortcomings; whereas the photograph, being restricted to its sombre black and white, or brown and white, must give us more than its fineness of detail to make a good impression and elevate itself above a mere piece of mechanism.

In landscape photography generally too much stress cannot be laid upon the importance of working during the presence of a considerable amount of atmosphere, commonly called haziness in the air. Of course in extended view there must not be too much haze, or the extreme distance will fall too much into the sky, and often cut off so abruptly from the foreground as to spoil the picture. But in more closed-in scenes the separation of the different passages as they recede by this atmosphere will enhance greatly the sentiment of the scene, and even to the less cultivated observer the effect of distinctness of relief of the foreground passages will be felt as more satisfactory. It gives an effect somewhat analogous, but in an entirely different way to the stereoscope. Painters generally avail themselves of this means of gaining perspective or a retiring effect in their works, and those interested may see at once, on examining a number of photographic views, how much more agreeable pictures those are that have been taken during the prevalence of some atmospheric haze.

ORTHOCHROMATIC PHOTOGRAPHY.

BY G. CRAMER.

IN my lecture delivered at the late Washington convention I have given the outlines of the history and description of ortho- or isochromatic photography, both terms meaning the same, —viz.:

The art of *correctly* or *equally* rendering in monochrome the various colors which in the ordinary process have such a different effect on the sensitive plate, that blue and violet are reproduced much lighter, yellow and orange much darker, than they appear to the eye. The orthochromatic process is receiving the highest attention abroad, while on this side of the Atlantic we have been considerably behind the times so far; but with the well-known determination of our people to march in the front ranks of progress, we shall soon make up for lost time, fully acknowledging the importance of orthochromatic photography. Inasmuch as the great problem to make photographs in natural colors is being far from solved, we must aim to accomplish the next possible, to reproduce the colors in monochrome in the true gradations as they appear to the eye.

American manufacturers have commenced to give orthochromatic plates their attention, and I for one have spared neither trouble nor expense to produce color-sensitive plates that meet the requirements of photography in its present advanced state. In the commencement I was assisted by the talented Boisonnas, of Geneva, Switzerland, known in Europe for his success in this direction, but whose experiments were unhappily cut short by his untimely death.

Later on I availed myself of the offers made by the well-known B. J. Edwards, of London, and Attout Tailfer, of Paris, whose isochromatic plates have a great reputation in Europe, and I have followed their example in adopting the name "isochromatic." I am now in the position to furnish plates that combine great speed and fine quality with good orthochromatic effect,

without the use of a yellow screen. The yellow screen, which serves to filter the light, and is either a yellow glass placed behind the lens, or a yellow pellicle inserted with the diaphragm, necessarily slows the action of the light, and demands a much longer exposure in direct proportion to the depth of color of the yellow glass or pellicle employed. It also causes trouble and annoyance in focusing.

It has been my aim to dispense with it, and I have succeeded in preparing rapid plates which are sufficiently orthochromatic for landscapes and portrait photography without the use of a yellow screen.

For copying oil paintings where long exposures are not objectionable, and where it is imperative to secure the fullest orthochromatic effects, I prepare a *slow* plate especially for this purpose.

It has been stated that the orthochromatic effect can be obtained with ordinary plates simply by the use of a yellow screen, but this idea is erroneous. The plate must have the elements of color sensitiveness in itself, and in comparing orthochromatic plates, they should be tried without a yellow screen, to determine their merits.

Now, let us see what are the advantages of an orthochromatic plate over an ordinary plate,—for instance, in landscape photography.

Let us imagine a landscape before us: above the blue sky with white clouds, in the horizon the distant hills, in the foreground foliage in the beautiful shades of autumn. The ordinary plate would take the sky white, being just as sensitive to the light blue as to white rays, and, therefore, will show no clouds unless they are of a darker shade. The distant hills would only be faintly visible, and the foliage be lacking in detail. The orthochromatic plates would give us a soft gray sky, not white, but with beautiful white clouds; the distant hills just as distinct as you see them in reality; and the foliage with all the various gradations, from the finest high-light to the deepest shadow, every leaf being clearly detailed, and every blade of grass standing out from the rest. In all, it gives us just what we see with our own eyes, except the

colors. For portraits, we will consider to photograph a pretty, rosy-cheeked girl from the country,—rosy-cheeked, but a little freckled, with a blue dress and yellow trimmings, and with auburn hair. The ordinary plate will give her a fair face; but what a job to retouch all the freckles. The blue dress will appear like a white one, the yellow trimmings will be too dark. Her hair will show a great lack of detail, and appear the same as black hair. While the other plate will give, if anything, a bolder, rounder image. Freckles will not be visible to a greater extent than you see them with your eyes, and as the portrait is generally smaller than the original, they are almost entirely invisible. The hair will be of a medium shade, and as full of detail as that of a brunette. The dress will be of a proper tone, the yellow trimmings in harmony with the rest.

Now for another portrait,—a gentleman from the country, with blue eyes and straw-colored hair, fairly sunburnt, and with a clear white forehead. You know these kind of subjects (I believe there is no photographer who does not get some of them). In his photograph the eyes are a colorless spot, the hair too dark, face without the roundness and life it should have, with a solid white forehead. The isochromatic plate, on the other hand, does justice to the eyes and hair, and gives tone to the forehead and roundness and gradations to the face. For copying paintings or colored drawings they are the only plates that can be used with success, the reason for which I do not believe it necessary to further illustrate, as you will observe by looking over the various pictures on exhibition at this meeting. I wish further to state that in developing the isochromatic plates you must bear in mind that they are very sensitive to yellow and orange light, and nothing but a dull ruby light can be used with safety, with the precaution to keep the plate away from any light as much as possible.

Hand-Camera Fiends Annoy Bismarck.—Prince Bismarck is complaining of curious Americans in Kissingen who follow him about everywhere with kodaks, even to his very bathing house. Orders have been issued to the German police to abate the nuisance.

PARAMIDOPHENOL.

VERY interesting and encouraging reports on this newest developing agent have been recently received. Its chemical properties have been compared with those of other agents. In *L'Amateur Photographe* the Messrs. Auguste and Louis Lumiere compare it with hydrochinon and eikonogen, and speak first of its oxidation in air. They say: "Were we to expose a twelve per cent. aqueous solution of paramidophenol, solution would be noticed first, that of eikonogen would take place perhaps in a few hours, and hydrochinon would remain unaltered for a very long time."

The product of oxidized paramidophenol is probably quinonimide, a black precipitate, insoluble in water, but soluble in ammonia with violet color, and of red color in nitric acid. Oxidized eikonogen in solution is dark brown, turns green under the influence of ammonia, and red with nitric acid. Oxidized hydrochinon is reddish, ammonia turns the solution yellow, and nitric acid dissolves it. It should be borne in mind that bases or carbonated alkalies added produce the same results as those forming during the development. These oxidization products behave, however, very differently with different developers in the presence of gelatine; they assume a yellow color with hydrochinon and eikonogen; with paramidophenol they remain colorless. This action is quite distinctly noted when we attempt to develop several negatives in the same baths of hydrochinon or eikonogen; but not the slightest color is perceptible after developing twenty-five 7 x 5 negatives with 3½ ounces of paramidophenol solution, the first and the last being of the same quality, and free from any trace of color.

When a current of pure oxygen is passed through solutions of these three substances, that of paramidophenol oxidizes first, hydrochinon awhile afterwards, and eikonogen last; but in either of these three cases is oxidization less rapid in pure oxygen than in atmospheric air, all other conditions being the same.

Aqueous solutions of either of these bodies do not reduce

silver haloids without aid of bases or alkaline salt, but they reduce silver salts perfectly without them.

Perchloride of iron colors paramidophenol to a bluish violet; in hydrochinon solution it produces a greenish color, fading afterwards to a dirty yellow.

Paramidophenol is of slight acid reaction. Nitrate of lead precipitates from eikonogen solution a very pale, grayish-violet deposit; it does not do so with hydrochinon and paramidophenol. Bromide of potassium and hyposulphite of sodium have the same effects upon paramidophenol as upon other developers.

To determine what quantity of either of these three bodies is necessary to reduce to perfection one gram of silver nitrate, M. Reeb's method has been employed, and the following numbers were found:

Hydrochinon	0.07
Paramidophenol	0.14
Eikonogen	0.30

By which it is seen that of paramidophenol twice as much is needed as of hydrochinon; and of eikonogen about four times, to reduce the same quantity of silver.

These remarkable differences have no practical value, as the reducing substance in the developer is invariably much in excess of the silver to be reduced.

From a photographic point of view the properties of the three substances are analogous, but paramidophenol offers, over the two others, the following advantages:

It oxidizes more rapidly than either hydrochinon or eikonogen; its action is consequently more energetic, and, all other conditions being equal, the development is more speedy.

The products of oxidation do not color the gelatine film, and the possibility of developing a large number of plates in one and the same solution is thereby guaranteed.

In varying the proportions of sulphite of sodium and carbonate alkalies in the paramidophenol developer a better conservation and greater activity of the compound can be arrived at. A formula well recommended is:

Water	800
Carbonate potassium	40
Sodium sulphite, crystallized	100
Paramidophenol	8

What better or more economical developer can be imagined if all these reports are substantiated. But the properties of paramidophenol here mentioned do not alone make it desirable. Its employment in one solution, and its durability, make it the *beau ideal* of all developers.—*Photographic Times.*

Dr. Andressen, the inventor of the new reducing agent, in view of the above statement by the Brothers Lumiere, publishes some further information regarding the new developer in *Photographische Mittheilungen*, p. 124.

Dr. Andressen states that he has been experimenting with paramidophenol for some time past, and as early as the beginning of the present year secured patents in various countries, securing to him the use of paramidophenol for photographic purposes. He now publishes the results of his experiments, which are in general of a theoretical character, and in conclusion devotes himself to the value of paramidophenol as a photographic developer.

Dr. Andressen has established that two modifications of developers are possible with the new agent,—viz., such with caustic alkalies, and such with carbonated alkalies. Both kinds proved very serviceable. The formulæ are as follows :

1. To 100 cc.m. of boiling water add 30 gr. metabisulphite of potassium, after which 10 gr. muriate[1] (?) of paramidophenol are dissolved in the solution. To the latter solution, while gently stirring the mixture, enough concentrated soda lye is slowly added until the precipitative paramidophenol has been again dissolved.

For use, this stock solution of paramidophenol soda is diluted with from five to fifty times its volume with water, according to the strength of developer required.

Water	1000 cc.m.
Muriate of paramidophenol	5 gr.
Sulphite of soda (cryst.)	50 gr.
Carbonate of potash	25 gr.

[1] Salzesaures.

According to Dr. Eder, the following formula insures the best results:

Water	1 liter.
Sulphite of soda	80 gr.
Carbonate of soda	40 gr.
Muriate paramidophenol	4 gr.

or

Water	1 liter.
Sulphite of soda	120 gr.
Carbonate potash	40 gr.
Muriate paramidophenol	4 gr.

The sulphate and carbonate are first dissolved, the paramidophenol being then added.

Dr. Andressen represents the new agent paramidophenol as equal in importance to the favorite eikonogen; but for the present, as most photographers are conversant with the properties of eikonogen, and on account of its almost universal adaptability to photographic purposes, Dr. Andressen personally inclines to think that to eikonogen belongs the preference.

The corporation known as the "Aniline Fabrikation," of Berlin, has secured control of the patent on the new paramidophenol, as they already have those covering eikonogen.

ORTHOCHROMATIC PHOTOGRAPHY.[1]

JOHN CARBUTT.

In the old collodion wet process days it was common for persons desiring to be photographed to first call on and consult with the photographer as to what colors could be allowed in the drapery to be worn while being photographed, many having found disappointment in their photographs, owing to the false rendering of colors by the wet collodion process. On the advent of the gelatino-bromide plate the results were somewhat better, owing first to the greater sensitiveness of the dry plate and its better rendering of the color values; but it was not until the introduction of the orthochromatic or color-sensitive plate that it was possible

[1] Presented at the Buffalo Convention of the P. A. of A.

to photograph objects containing the colors of the spectrum rendered at their true color value in monochrome, it being well known that both the wet collodion process and plain dry plates render blues lighter and yellows and greens darker than is represented to the eye. But by the use of orthochromatic plates this defect in our beautiful art is corrected, and it is now possible to reproduce both objects of nature and paintings in their true color values.

When I commenced making the orthochromatic plates in 1886, many scientists and amateurs in this country were experimenting in orthochromatizing the commercial plain dry plate, and while good results can be obtained by this method, it was found that they lacked the important quality of keeping, and this fact being made known through the photo journals, led many photographers to believe it applied also to the commercial made orthochromatic plates; but I am able to state most emphatically, as a result of personal experience and experiment, that the orthochromatic plates made from emulsions containing the color sensitizer have just as good keeping qualities as those made from plain emulsions.

Our professional photographers, on the first introduction of the orthochromatic plate, were slow to make use of them, having the idea that it was necessary to use a color screen under all conditions. This, of course, was very erroneous, and with increased knowledge among professional photographers of the value of color-sensitive plates, they are being used more and more for all general work. The art publishers in this country were the first to recognize their value, and the very fine reproductions in monochrome of paintings issued by them within the last few years are the result of the use of orthochromatic plates.

Now in regard to the color screen and when to use it. In my opinion, it is misleading to say that no color screen is required. For general work of the studio, landscapes, flowers, and such subjects as contain no deep orange or red, a color screen is not necessary, but in copying paintings in which light blues, light greens, and reds are present, it is necessary to use a screen, the color being selected to suit the subject. A pale yellow screen is

generally sufficient, but when the subject contains both blues, deep orange, and red, then a color screen of a light orange tint should be chosen and the exposure increased. It is well to be provided with screens of different tints: a pale yellow, a yellow of deeper shade, and a light orange. On examining a painting to be photographed through one of the color screens, it is not difficult to choose the right one; the blues should appear of a greenish shade, the light yellows and whites would then have their relative value in the photograph.

It is rarely that a color screen is needed in photographing landscapes, except when mountains brightly lit, or white clouds relieved against a blue sky, or a hazy distance,—then a pale yellow screen will be of value, and by increasing the exposure, will enable detail in the near foreground to be better rendered. Examples of this can be seen in the landscapes by Dr. Charles Mitchell, in the Exhibition Hall, and the photographs of paintings and interiors by Charles Truscott.

I feel that I cannot close this paper without strongly advising you, the professional portrait photographers of America, to use the orthochromatic plates in your studio work, and as the cost is the same as plain plates, there is no excuse on the score of expense why you should not, especially as any object that can be photographed on a plain plate can be equally, if not better, done on an orthochromatic plate; and there are many objects that can only be correctly photographed by using orthochromatic plates. They are no more difficult to manipulate, simply requiring to be shielded from an excess of light during development. The best light I find is that coming through an orange-red medium, and as the orthochromatic plate is more sensitive to yellow than the blue, I would suggest that the walls of the studio be tinted a pale yellow, the side screen also, and the curtains to the skylight of yellow cheesecloth. The results in your portraits would be blue eyes rendered darker, auburn hair lighter than it is usually rendered, freckles much less conspicuous, and colors in drapery rendered with a truer color value, together with a more harmonious result generally, and, not the least important, a picture that will enable you to secure better prices for your work.

ILLUSTRATION OF POEMS BY PHOTOGRAPHY.[1]

BY CATHARINE WEED BARNES.

DELEGATES to political conventions are often said to be "instructed"; and so I conceive myself to have been in receiving a notification that my paper for this convention need not be long and should be instructive. I shall try to carry out my instructions.

Let me put myself on record, to begin with, as decidedly and understandingly taking ground that the words "art" and "artistic" are no longer the private property of painters and sculptors. After several years' training in painters' studios, I have largely laid aside the brush for the lens; and, in so doing, it appeared to me as if I were only stepping from one room into another, working with different tools, and under different conditions, but imbued with the same reverence for art and feeling the same inspiration. It is an undeniable fact that painters and photographers are apt to put on very defective glasses in judging each other's work, and a course of mental optics would benefit both in correcting far more serious aberrations than any to be met with in a photographic lens. Where one's attention is given almost entirely to portraiture, pure and simple, much of what might be called art in photography is not required, and would not be appreciated; but photographers justify the reproach that theirs is machine work when they allow themselves to sink into such a deep groove as only to see along the narrow path before them; while experience in painters' studios ought to liberalize one's judgment of a picture, whether made by brush or lens. There is often, however, great bigotry in much so-called liberality, and it needs a steady hand to hold an even balance in judging camera work, now that it is worthily claiming a higher place in the judgment of the world than any heretofore given it. Neither the scientific nor artistic qualities should be exalted beyond their proper places. The lens has limits, and it is not a brush; yet when those limits are fully understood, it will be seen that they

[1] Presented to the Buffalo Convention of the P. A. of A.

embrace wonderful possibilities of their own. But, as always when one departs from the beaten track, this means hard work, a great deal of trouble, endless patience, severe art training, and a thorough understanding of what is meant by illustrating. I conceive this last to be a pictorial translation of an author's meaning, and that anything and everything which will tend to elucidate that meaning is justifiable. This remark is intended, as will be seen, to cover a wide field. The faintest conception of the true art spirit ought to keep one from making his pictures the stilted, ordinary, not-to-be-mistaken photographs. Push photographic limits as far as possible, refusing to be bound by the traditions of the portrait studio, and cutting loose from whatever can suggest it. Start with the intention to have all your accessories what they claim to be; and where it is obligatory to use imitations, have them as perfect as can be made. Do not adopt the penny-wise and pound-foolish policy, or think it always needful to go to great expense in the studio, for a little ingenuity often goes a long way in devising useful contrivances. In many cases where I have been credited with expensive appliances the same have been made by my own hands; and where unable to actually make the desired articles, I have designed them after long and careful thought. It is well to settle in one's mind, before taking up illustrative work, whether the object or the manner of realizing it is the main point to be considered. If the latter, then, like the Irishman, stop before you begin, for you will not have enough enthusiasm to carry you over the inevitable discouragements ahead of you. Believe in and respect the dignity and beauty of the work, count no detail as beneath your notice, use all the resources your taste and experience can suggest, and make everything give way to the definite purpose of obtaining a picture which will tell a story. Do not try to show the extreme limit of what can be done by a lens, but study simplicity, and avoid using more figures than are absolutely necessary. An artist with whom I once studied cautioned me against introducing figures into my paintings of interiors. "No matter how good everything else may be," he said, "people will pass it by and criticise the figure." Photography and portraiture have for so long been understood

as synonymous terms that it seems difficult to believe the figure is not the first thing to consider, even in an illustration. But such is not always the case, for, however effective the figure may be, the picture as a whole may often be ruined by some petty detail or incongruity. This is one reason why illustrations by photography are expensive to make when they call for correct rendering of historical costumes and surroundings. It is generally wiser to select subjects which allow simple and easily procured scenery, and which, in many cases, allow the work to be done out-of-doors even better than in the studio. Illustrations of outdoor scenes ought to be made out-of-doors, and the light be subdued, if needful, by thin screens. As plenty of distance can be gained by this method, beautiful effects are often secured.

It is a great help to make a sketch of the intended picture, and decide where the figures will be placed, as well as all the accessories, before making an exposure, and study the effect of different colors and materials. Another good plan is to arrange everything except the figures, and make a preparatory exposure on the size and kind of plate, and with the same lighting you expect to use. I have known otherwise fine negatives to be lost by neglecting this precaution, finding after development that the plate was an old one, or was slower than ordinarily used in the studio. In this connection I should mention that professionals have told me they were often tempted to return to wet plates, as the dry plates, however good when fresh, could not be always relied upon, and were apt to fail when it was impossible to duplicate a negative.

Looking at the picture from a painter's standpoint, it must be remembered whether you are supposed to take it indoors or out, by full daylight or in the evening. Do not, if the scene to be represented would naturally appear dark in certain parts, seek to light it evenly, but think how a painter would treat it. This may lay you open to criticism from a merely photographic point of view, but you are not making a portrait. In the great paintings of such men as Rembrandt parts of a picture are often in dense shadow, and in a painting that would not be criticised; but the same thing in a photographic picture would, nine times out of ten, be sharply condemned. This is unjust, for lens or brush

would be useless if not inspired by a skillful brain, and it does not follow that a man can arrogate to himself the name of artist simply because he uses a brush, or deny it to one who recognizes the future possible for camera work.

It is always hard to live down a prejudice or a preconceived opinion; but there is a great deal of that to be done before art in photography is fairly recognized. As in a battle the flag must be raised high over men's heads to enable it always to be in their sight, so the ideal in any line of human endeavor ought to be kept plainly before men, so that they shall continually grow and improve, and never feel that there are no more worlds to conquer; and the best thing about illustrative work is that one can never learn it all, for every victory makes a further one possible. Perhaps, and rightly enough, there is no quality more demanded in artistic photography than originality, though it is often supposed not to coëxist with technical excellence. Photographic training by itself is apt to form a stiff and artificial style; but it is not necessary, therefore, to assume that originality consists mainly of a violation of the rules of technique. Let imagination dominate your work and permeate the whole, but let it be guided and controlled by discriminating judgment. The height of art is to conceal art, and to do this requires a thorough knowledge of technique. Photography has only begun to show what it can do in illustrative work, and its progress should not be made any more difficult than is inevitable from the unavoidable obstacles in its path.

Demand always creates supply, and these obstacles will be gradually removed; but the attempts already made in this line of work should be judged by what has been done heretofore, and not by what we hope to eventually accomplish. Wiseacres the world over may shake their heads and declare that art is being lowered by the camera seeking to displace the brush, but the inexorable logic of events is an overwhelming force, and there is no use in fighting the inevitable. It is not the part of wisdom to ignore difficulties, but to meet and overcome them; and the greatest genius must, in this work, be governed by certain fixed rules, laboring, so to speak, in harness.

The poem selected for illustration should be almost learned by heart, thought of, brooded over, and dreamed about, until the fitting lines force themselves on one's consciousness. The famous painter, Da Vinci, was blamed by the prior of the monastery for which he painted that wonderful fresco of "The Last Supper" because he spent days in sitting before his work without touching it. But the figures and surroundings were, meanwhile, being evolved from his inner consciousness, and when he finally took up his brush no part of the picture needed correction. Let your mental vision see the picture as a complete whole before you even think of actually making an exposure. I believe also in testing my models in an ordinary portrait before posing them for the illustration, as sometimes an apparently good subject will prove a very poor sitter. The exposure ought to be so nicely calculated as to leave but little work for the retoucher, but this depends largely on the sitter.

It cannot be too often repeated that the retoucher should have some knowledge of facial anatomy, and realize he is to labor over an intricate network of muscles and nerves, each affecting the expression, and not over a flat surface with nothing beneath it. It might be well also to have a school for training models, as it is very discouraging, after securing an effective pose or a fine printing negative, to find your sitter has moved. It is almost impossible to use head-rests in work of this kind, and where 11x14 plates or larger are used, expense is something to be considered. It is incomprehensible to me, this utter inability of some people to face a lens; and where their nervousness or constant questions as to how they shall sit causes the loss of a good negative, it requires genuine Christian charity to "think no evil." My first unregenerate impulse is to decline the sitter's further services; when, for instance, a pathetic scene is to be represented, and he or she seems to be possessed by an insane desire to be humorous. Painters are more fortunate in this respect than photographers, as their models are usually trained, and are not apt to offer advice as to how they take best, as if that had anything to do with the parts you intend them to portray. The operator who conscientiously tries to bring out the thoughts of a writer is under a keener

nervous strain than the sitter can understand, unless he or she is a camerist.

I have learned to have the warmest sympathy for professionals, and when I hear people say, "It is so tiresome to sit for a picture," always wish to say, "You don't begin to endure what the operator has to, and your work is over with the sitting. He is the one to be pitied, not you."

The possession or lack of the true histrionic instinct of forgetting self in an assumed character is at once revealed by the model when the operator disappears under the mysterious cloth. When only the keen-eyed lens confronts the sitter, it seems to a nervous person, as a friend once said to me, as if the aforesaid eye was gazing into one's very conscience. The average sitter, whether willing to acknowledge it or not, is intensely self-conscious, which is the true name for what they like to call "nervousness." You do not, however, want your sitters to be like clay in the sculptor's hands, but have some idea of adapting themselves to the required situation. They should, for the time being, merge Miss A. or Mr. B. in an assumed character, and it is a discouraging truth that, if they cannot do this, the picture will be a failure, no matter how fine the conception. Sitter and operator ought to be in perfect accord, and I do not find that there is much to choose as between men and women in sharing the above blame; one is no more self-conscious than the other. Sometimes, indeed, models are so willing to please that they wish you to arrange every finger-joint, or suggest to them the exact shade of expression needed, generally at the very moment you are placing the holder in position or drawing the slide. I do not know which is the more difficult to manage. The operator who poses the figure and designs the picture should have nothing to do with the petty details of filling holders, placing them, drawing the slides, and moving things into position. The mere physical fatigue dampens one's enthusiasm, and it is absolutely important to have the nerves under control, and not be conscious of one's body.

I have said little about technical details or studio appliances, deeming that would indeed be bringing coals to Newcastle, but would like to speak of a few points which have proved practi-

cally useful to me. No illustrative work should be undertaken with any but the best lens. A rapid rectilinear is generally preferable, but a wide angle is often absolutely required, and I believe, in either case, in having it able to cover a larger plate than the one used, cutting sharp with full aperture. The studio scenery ought to be, as far as possible, in real, not simulated, relief; plastic, not painted. This allows the figures to be more naturally posed, and not so apparently on a line. Most of my scenery can be taken apart and readjusted, so that when used with different draperies, carpets, and furniture it can form a number of combinations. With regard to the skylight, I have discarded the ordinary overlapping panes in favor of continuous sheets of ribbed glass a little over an eighth of an inch thick. This is covered by five sets of white shades divided into half-yard pieces, running on wires from side to side. Over these are three sets of black shades, divided and run the same way. The vertical shades slide up and down. I use an ordinary view camera, as, with double holders, it permits more plates being ready before commencing work, and this is likely to save much time and trouble.

Competitions and exchange of ideas, such as the present convention, when used for the purpose of self-improvement, and not mere display, ought to be of incalculable benefit, and the inspiration gained by the attrition of different minds constantly raises the standard of photographic progress. In illustrative work amateurs and professionals can labor side by side, and each gain from the other. The former will learn to appreciate the almost infinite patience, tact, and hard work demanded of a professional, who, on his part, will learn that the intelligent amateur helps to elevate the work to which he himself has perhaps given the best part of his life, and thus by disseminating mutually a wider and clearer knowledge of photography, gain for it a more thorough appreciation and admiration.

AMATEUR EXPERIENCES, XII.—A TRIP TO THE SEASHORE.

BY J. FOCUS SNAPPSCHOTTE.

MR. EDITOR: Taking advantage of your absence at the Buffalo convention, and carrying out the old maxim of the mice and the cat, I combed the hayseed out of my hair, and shook the straw from my whiskers, and hied myself to the seashore in search of a few days' recreation. Being somewhat of a timid nature, rather unsophisticated, and not much used to the ways and allurements of the world, my journey naturally led me to the great moral twin resorts on the Jersey coast.

Of course I took my "Model" outfit along. After my arrival at Ocean Grove I located in a comfortable cottage, being attracted by a tin sign which bore the legend that it was a "Farmers' Cottage." After a short rest, I started out to see the sights, and lay out a routine for the next day with my camera. I attended the various services at the Auditorium and Temple, not the least of which was a magnificent lantern journey by Phillip Phillips, where many views were shown to an audience of probably three thousand persons. To show how the exhibition was appreciated, I was told the collection amounted to about 1,400 pennies and a few nickels. Directly in front of me were two girls, both unappropriated blessings; in fact, as near as I could judge, they were decided wall-flowers. As the basket came near one said: "What you going to give, Sally?" "Nuthin'," was the reply. "Why, how's that; didn't you like 'em?" "Oh, yes, but they're nuthin' but fotegraphs." So the basket was passed, and "nuthin'" put in by the two maidens.

On the next morning I started out to make a few "fotegraphs" on my own hook, but soon found out that photography, like smoking, was prohibited within the precincts where I wished to operate. That settled the place for me, and I concluded to cross the bridge over the lake into Asbury Park.

Just here I made a grand mistake. Now I always thought that I didn't look any different from any of your city residents. I

am sure I had my boots blacked, hair cut and oiled, in town, and besides wore my brand new suit of store clothes, bought especially for the trip at the Leopardville X Roads Store. Still there must be something about me that I cannot overcome, as the sequel will show you.

After I had walked about awhile, I went into a restaurant for some refreshment. Well, who should I see there waiting on a table but Carrie Kase, the secretary of the Leopardville Camera Club, and who is also teacher of our unclassified school. The surprise was mutual. Well, Carrie took my order; I had plenty of chicken and potatoes and pie and watermelon, and the check wasn't big either. She told me she would be off duty in an hour, and would go around with me and show me the sights. Well, first we went to the merry-go-round, and took several rides on the goats without getting the brass ring; then we had some root beer, bought some salt-water taffy, and went to the toboggan slide. Oh, my, but we had fun! After that we went to the pier, and had some ice cream; then we took a walk up the boardwalk, and had some pink lemonade. By this time Carrie's hour of duty had come around, and I went to her table for supper, after which I concluded to take a walk and smoke a cigar until Carrie's time was again over, when a moonlight walk and ice cream was on the program; but it was not to be. When I got down near the merry-go-round a man hailed me; he had a little table on three sticks; on this were three little shells or cups. "Good evening, gentlemen," says he "don't you want to try your fortune." With that he picked up a shell, and there was a pea under it. He continued: "Now you see me put this shell over the pea before your eyes, and I will bet you five dollars you can't tell under which shell it is." Well, that was a sure bet. I saw him put the shell over the pea, so I said I wouldn't bet five, but to make it ten (the last money I had), and I would speculate. Well, the money was put up, and the pea was under another shell. I had lost, and was cleaned out. What to do was a question. Tell Carrie I would not; baggage I had none. At last I bethought myself of my "Model" outfit, and told my tale of woe to a police officer, who told me I was fleeced, roped in, and swindled. He directed me to a very

benevolent gentleman in the upper end of the town, who he said would help me out of my difficulty. I couldn't miss the place, as there were three large golden apples hanging out over the door. Well, I went there. The benevolent gentleman was a man of marked features, black, curly hair, and a large, hooked nose. I told him my tale of woe, and handed him my pet "Model" outfit, plates, tripod, focusing cloth, and all. He handed me two dollars to get home with, and said he would take care of my outfit for thirty days. I could have it back any day within a month if I returned him a five-dollar bill; if not claimed within that time it would be forfeited. So here I am, back home again, poorer but much wiser; but the saddest part of all is not that I had to forego the moonlight walk on the boardwalk with Miss Carrie, but that my whole photographic career is at an end unless you will come to my assistance.

Caught by a Detective Camera.—Two Paris dressmakers, Mesdames Lange and Charansonnet, on entering their room, some nights since, at 2 Rue St. Honoré, found that the doors had been broken open, and that £400 in banknotes and a box containing £800 in notes and jewelry were missing. The arrest of the thieves—three men and two women—and the recovery of the greater part of the property appear to have been due to a detective camera, which on this occasion has abundantly justified its name. "An amateur photographer," says the *Daily News* Paris correspondent, "lives opposite the dressmakers. He, looking out of his window one afternoon, observed two young women on the balcony over the way. With his detective camera he took an instantaneous photograph of the two strangers, and closed the window. Several days later, on hearing of the robbery, he sent a print of his photograph to M. Véron, the Commissary of Police of the Halles, who recognized it as that of two women who frequently loitered in front of the Central Market. They were arrested, and gave the names of their accomplices."—*Photography.*

REPORT ON THE PROGRESS OF PHOTOGRAPHY.

BY DR. H. H. ELLIOTT.

(*Continued from page 390.*)

WE hear rumors of the advent of collodion plates that are as rapid as the gelatine dry plate, but we have not heard of any practical use of these plates. It is stated that at the present time they are twice as costly as the gelatine plates, but it is only a question of time when we shall have them in competition; and for many purposes they may be found of advantage, even at double the present prices of dry plates, —notably in photomechanical work.

Flash-light photography has many workers, and it is constantly being put to good use, and its manner of application being improved. Various devices have been employed to overcome the hard shadows that were to be found in the first pictures made by its use. The methods of doing this are in the division of the magnesium powder into a number of small charges rather than using it in one large flash. These charges are fired simultaneously by the use of a number of gas jets, that are made to impinge on pieces of gun-cotton, on which is placed the magnesium, the projection of the many flames at the same instant being controlled by some device that regulates the pressure of the gas, and increases it at the same moment at every jet. Pictures made by these methods are very hard to distinguish from those made by daylight.

The color of the magnesium light is capable of much modification, and in this respect may be a most useful adjunct to the orthochromatic plates. Two German experimenters have applied this in photomicrography, using a mixture of perchlorate of potash with magnesium, chloride of sodium, and tartrate of barium, with some excellent results.

The development of the photographic plate has received a good deal of attention during the past year. In the matter of developers there is not very much to report, but quite recently paramidophenol, a substance related somewhat to eikonogen, has been proposed as a new agent. Like eikonogen, it is not very soluble, and it is also rather expensive, but if it is found to have any decided advantage the chemist will soon find a way to make it cheaply. At the present time it is said to possess good developing powers, and its use gives no stains on the films. Compared with eikonogen and hydrochinone, it oxidizes more rapidly than either. It is consequently more active than these developing agents. But its most important advantage is the fact

that it will not color the film, and can be used for a large number of plates in succession. It is said that as many as twenty plates may be developed in the same bath without causing the least stain on the negative. From these indications it would appear to be as rapid as pyro, without its straining defects.

In connection with the subject of developers, the interesting experiments of Colonel Waterhouse deserve a moment's attention. He has found that by the addition of a very small quantity of thiocarbomide to the developer of eikonogen it is possible to produce a positive image instead of a negative one. This is a matter of small importance to the ordinary photographer, but to those who have to work the photomechanical processes, it is a saving in the steps to be taken for the production of the final printing plate, for it saves the production of a positive from the usual negative.

Coming now to the printing processes, we must record the revival of the use of gelatine as a substitute for albumen, with more improvements than it has seen in many years. Aristotype paper has made some very important advances during the past year, and if the march of progress is continued, it may supplant albumen paper entirely as a basis for the photographic print.

Platinum-printing still holds its own with amateurs, and it would be a source of profit to the professional photographer in the better class of work if he would but take time to overcome some of the earlier difficulties. In Europe they are far ahead of us in this matter.

A new printing process was presented to the photographer by two English chemists some months ago, which depended for its action upon the change made by light in the chemical structure of a dyestuff made from the coloring matter known as primuline. This substance has the curious property of uniting with different organic matter, and producing with each one a colored print. If, therefore, we print in diazo primuline from a star-shaped negative, we can make each of the star rays of a different color by the use of different organic matters put on as developers in the form of paste. The great drawback to the success of the process is the color of the ground, which is of a bright yellow tint. Up to the present time the inventors have not been able to change this color; but if it is ever accomplished we shall be in possession of a printing process of great beauty and capable of many variations,—this, too, without the use of silver or any other metallic salts, as the substances used are entirely of organic origin.

The application of photography to astronomy continues to give the most wonderful results. Stars unseen by the human eye are detected

by the photographic dry plate; and some recent photographs made in Sydney, Australia, show that the stars of the Milky Way are really larger than they appear to the eye through the telescope. This is due to the fact that they emit many blue rays which are invisible to our sight, but whose light affects the photographic plate.

Photomechanical printing processes have made important advances in color-printing, in which they are now producing some of the most beautiful work ever attempted by the aid of light and the printing press, and without the aid of the human hand. In this respect the work of Bierstadt, of New York, surpasses anything of the kind ever attempted before. By the use of colored screens he takes several negatives of the different colors that make up the painting he wishes to produce by photography, and by means of these he prepares corresponding gelatine surfaces, that serve as the basis for the printing of the colors by superposition, as in the lithographic methods. The results obtained are very beautiful, and are almost a perfect fac-simile of the original picture. It will be by some such process as this that we shall be able so take photographs in their natural colors.

Such is a very rapid survey of the advances of our art since we last met. In the brief space that could be given to such a report as this many really important steps of progress have reeeived but a word of mention. This is not because of the lack of appreciation by the reporter, but from a fear that during these warm days a long disquisition would weary you.

If I have failed to do all that you have expected of me, please remember that I am only an editor, and while I fully appreciate the honor you have conferred on me, I hope I may not be forgotten in your charity.

There is no real satisfaction in a photographic portrait. At the best it catches only one expression out of the ever-changing tones that make the face of one for whom we are charming. Why should it not be possible to accomplish a good result by taking a composite photograph of one person,—that is, by photographing that person repeatedly in the same pose; when he is grave and when gay; when tired and when fresh as a lark; when meditative and when alert. Then take the result of all, and then see what kind of a man we should have. It would at least be an interesting experiment.—*Free Press.*

ALUMINIUM AS A SUBSTITUTE FOR MAGNESIUM.[1]

IT has been claimed by scientists for some time past that aluminium in minute particles burns in the air and generates an intense light, equal to magnesium.

At a late meeting of the Photographic Society of Vienna, Herr Patz presented a number of experiments, showing that magnesium may be replaced for photographic purposes by the far less costly aluminium.

His results were as follows:

Aluminium leaf ignites readily, is not dangerous, and burns with jets of sparks (scintillation).

Coarse aluminium powder failed to give satisfactory results.

Fine aluminium powder, mixed with chlorate of potash and sulphide of antimony, gives good results, but generates smoke equal to the magnesium compounds. However, if the sulphide of antimony is dispensed with, this objectionable feature is overcome (?—Ed. *Wochenblatt*).

Powdered aluminium blown thrown through a flame will not ignite.

These general results obtained were similar to those arrived at in a course of experiments undertaken several months previous in Berlin by the staff of the *Photographisches Wochenblatt*, presumably by Dr. Miethe in person.

For this purpose fine aluminium filings and aluminium bronze powder was used, the latter such as is sold on the market as a substitute for silver bronze.

Aluminium filings, on being forced through a Bunsen flame, failed to ignite; but combined with some of the various substances containing oxygen (chlorate of potassium, nitrate of potassium, manganate of potassium), ignited in the usual manner, but the whole mass failed to consume entirely.

If anhydrous glycerine is dropped upon a mixture of manganate of potassium and aluminium powder the compound frequently ignites and burns with a not very strong light, while a magne-

[1] A free translation, by J. F. Sachse, from *Wochenblatt*, No. 25.

sium compound under similar conditions would explode with an intense light action.

Aluminium bronze powder, which, by the way, is considerably dearer than magnesium, may be blown through a Bunsen flame, and the combustion will be almost complete, provided the flame is sufficiently large, and the propelling air properly separates the particles. The chemical action of the light was active, and the resulting smoke hardly noticeable.

The same powder, mixed with finely ground chlorate of potassium, with or without sulphide of antimony, burned a little slow, and without giving forth any strong light. On the contrary, if combined with manganate of potassium, the mixture burned quickly, and gave a bright illumination.

But even the latter mixture does not always ignite with absolute certainty when treated with a drop of anhydrous glycerine, and in case, even in small quantities, an ignition does take place, it is invariably accompanied by a loud detonation.

To Repair Broken Negatives.—Place the negative, gelatine side down, on a plate rather larger than the negative. Coat the edges of the fragments with warm Canada balsam ; join them together, using strong pressure. Remove the excess of balsam, then cover the negative with another plate exactly the same size, and previously coated on one side with neat varnish :

Sandarac	3 grams.
Mastic in tears	3 grams.
Sulphuric ether	50 grams.
Benzole (pure)	25 grams.

Lift together the three plates, turn them over, remove the large one that has served as a support, scrape off from the gelatine side the balsam that may have exuded, then surround the two plates with strips of gummed paper. Heat slightly the fragments before joining them together. This process will yield a print upon which no trace of breaking is to be seen.—*L'Amateur Photographie.*

Permanent Prints.[1]—The first thing to be settled is, whether there is such a thing as permanency in prints. The battle between platinotypes and bromides has been generally admitted to be a draw. Neither side has been proved to be vanquished. It therefore remains for time alone to prove which will last the longest under ordinary circumstances. Platinotypes are usually credited with having most chance of lasting, but hanging in the club room may be seen a good specimen of a print which has now been out here for some years, which has not lost anything to speak of in the strength of the blacks,—but what about the whites? They have (like every other photograph in India sooner or later does) lost their purity, and if examined in a good light will be found to have turned quite yellow. So far my experience with bromides has been that they keep out here quite as well as platinotypes, and, until a few days ago, I had nothing but the highest opinion of them. Alas! not so to-day.

In the summer of 1890, while in England, I printed a quantity of bromides and platinotypes, and spared no trouble to wash them perfectly, with a view to keeping them in India. Some I mounted in a book, and the rest were mounted on cards for framing. Seven months only have gone, which any one will admit is no test at all, but, unfortunately, quite enough to seal the fate of three bromides. On turning over the pages of my book, I found to my dismay that, where a bromide print faced a platinotype, it had (I mean, of course, the bromide) turned quite brown, and was vanishing into clear white paper. Turning over a few more pages, I found the same thing again, and it turned out that wherever a bromide and platinotype came face to face it was all up with the bromide, while in no case has a platinotype suffered in the least. Of course the first answer to this is that there must be some acid left in the platinotypes which acts chemically on the silver of the bromides. Well and good; but it is very poor fun if we are to keep different books for every different sort of print. There is, however, one point about my faded bromides which hardly bears out the acid theory. If there is acid left in the prints the whole of the picture in bromide ought to fade away. Not so, however; the black of the bromide only disappears where it comes in actual contact with the actual black of the platinotype, and I am more inclined to think it is more of a galvanic action between the silver and the platinum.

The bromides mounted on cards and frames have not deteriorated in the least, so that it is not likely that my manipulation was at fault. —*Brown Slick, in Photographic News.*

[1] Abstract from the Journal of the Photographic Society of India.

HELIOCHROMY.[1]

BY DR. ED. LIESEGANG.

THE skeptical belief in the solution of the problem of heliochromy seems to increase more and more. Niepce, Becquerel, Poitevin, and others were unable to satisfactorily fix their heliochromes. Veress has also failed so far, although his experiments in that direction have not yet ceased. Lippmann succeeded in fixing the results obtained by inferential colors completely, as the plates were sensitive for the different light waves. It is questionable whether this method has any advantage over chromocollotypy.

Dr. R. Kopp, in Münster (canton Luzern, Switzerland), believes that he has succeeded in uniting the advantages of the chemical and physical methods by a new process, which he has been three years in perfecting. He claims to have succeeded in impressing all colors on a single film, with short exposure and permanency of the product. Following extracts are from his direct communication in relation to the enclosed samples:

1. All the colors and color shades, including white and black, are reproduced by true heliochromic principles, therefore are the result of direct photography.

2. The time of exposure, in contrast to heretofore, is greatly lessened, and varies with direct sunlight but 30 to 50 seconds; in diffused light the time is naturally lengthened.

3. The fixing is successful, but in a large exposure to direct sunlight the image suffers somewhat.

The absolutely perfect fixation in my process is unquestionable, and it will not be long before I send you a proof which can withstand the brightest sunlight.

Dr. Liesegang states that the four specimens sent by M. Kopp were copies of transparencies and glass pictures on paper. Red, violet, yellow, and green were well represented. The experimenter adds: "You must not say that the reds or blues here and there are not good. This is not my fault, as you well know. It is exceedingly difficult to obtain colors equal to spectrum colors in copying glass paintings, paper pictures, or stained glass, as they are not pure, but mixed colors, which will not reproduce as they appear to the eye, but as they really are optically."

[1] Translated from *Photographische Archiv*, No. 676, by J. F. S.

It is always requisite that the ground should be a pure white. Becquerel obtained a pure white in his heliochromes on silver plates. According to the theory of Niepce, this must result when the argentic salt is formed of chlorides which whiten under the flame. Later he obtained the same result by coating the image with chloride of lead. Lacan mentions a "dazzling white" in his heliochromes. Poitevin makes no mention of white in his paper proofs. Simpson's were unsatisfactory. In Veress's samples the ground was yellow brown. This atavism in Kopp's process is nevertheless significant.

Concerning the time of exposure, M. Kopp continues: "The time of exposure, as before noted, is a very short one. During July, on a clear hot day I copied a picture in twenty seconds in the direct noon-day sun; the whites were complete in ten seconds. I further believe that I will be able to increase the sensibility of the emulsion so as to be able to produce pictures in the camera within a relatively short exposure. The weather was unsuitable for camera experiments; yet I obtained results, thanks to the extreme sensibility, which remove all doubt as to a successful result in the near future. I have obtained the greens and yellows of the meadows and trees entirely true to nature. I resolved not to send out any proof of camera work until I have arrived at a certain degree of perfection, else I should have included a specimen."

We will but remark that Niepce obtained views in the camera in fifteen to thirty seconds. Saint-Florent got the same results on paper in fifteen to sixty seconds. Veress claims one-and-a-half hours for a contact print.

M. Kopp continues: "That the fixing of the enclosed prints is permanent may be judged from the fact that they have been handled and exposed to all sorts of light. It requires a strong light and long action to destroy the prints."

For the present we cannot agree as to the permanency, as in one sample, half of which was exposed to the sun, the white ground soon changed to violet. The other colors, green and yellow, remained unchanged. M. Kopp promises in the near future to send a proof which will stand the requisite test.

The production of the pictures, which differs materially from any former process, M. Kopp does not wish to publish at present.

As the experiments continue complete permanency will, without doubt, soon be achieved.

EDITORIAL.

IN our July number we published a paper on "The Latest Theory of Photographic Development," [1] in which it was our object to satirize the various schemes and announcements of color photography which periodically crop out in the sensational press of the day, and are too often republished by reputable papers, and accepted as an accomplished fact without any attempt to verify the report.

In our paper we ventured a scheme which to our mind was even more visionary and utopian than that of Tiphaigne de la Roche,[2] published in the year 1760. In writing the paper we never for a moment harbored the thought that the visionary scheme could ever be realized on the lines set forth in our paper. Now comes the strangest part of the matter, which seems to be one of those metaphysical problems which occasionally come to the notice of the scientist, but so far have resisted all attempted solutions, viz.: In the month of June, at the same time that we were preparing our article, in which agar-agar holds so prominent a position, a patent was granted in Germany to Wassily Rebikow, a native of St. Petersburg (D. R. Patent, No. 56573), securing to him the process for using agar-agar for making sensitive emulsions for photographic purposes.[3]

In addition to the above, we learn from a trustworthy source that the use of the secretions of the Cephalopodia for photographic purposes has for some time past engaged the attention of some of the leading scientists of continental Europe, and has been the basis of exhaustive experiments.

It would indeed be strange if our humorous satire, which has since been translated in several different languages, should in the course of time prove a solution to the much-sought-after color problem,—yet stranger things than this have happened.—J. F. S.

Erratum.—In Dr. Wm. H. Seaman's paper on page 365 of August JOURNAL, "An Amateur's Experience in Instantaneous Photography," instead of "one to four per cent. of hydrochinone," read one-fourth of one per cent. We particularly noted this error, and corrected it on our proof, but it seems to have escaped the final proof-reading.

[1] AMERICAN JOURNAL OF PHOTOGRAPHY, Vol. XII., p. 304.
[2] AMERICAN JOURNAL OF PHOTOGRAPHY, Vol. XI., p. 121.
[3] Specifications in full, p. 393, *ibid.*

Our Illustration.—We present our readers with a characteristic street scene of old Philadelphia, "A Kensington Fish Woman." The negative is by James F. Wood, the prints, made with "Hoover's Rapid Printing Machine," are printed on the Buffalo Argentic Company's bromide paper from a continuous roll, at the rate of one every eight seconds. The character represented is one well known to all old Philadelphians, and about a quarter of a century ago was quite common to all parts of the city. The mere sight of the picture will recall the peculiar early morning cry, "Cad-feesh, cad-feesh!"

The Lens and Shutter Contest.—We are given to understand that the Bausch & Lomb Optical Company, in relation to the prize contest inaugurated by them, have received responses from forty of the most prosperous amateur societies, expressing their willingness to participate in this contest, and that the matter is taken up with much enthusiasm by the individual members. The success of this movement is now assured. The lenses and shutters with which the negatives are to be made have been sent to every society that has entered the contest, and the matter is now fairly under way. We will keep our readers informed as to the progress made in this direction as the news reaches us.

Just before the last issue went to press we received notice of the death of Edward J. Partridge, of Portland, Oregon, which was briefly mentioned.

He was one of the many enterprising young men who seem to become a part of the progress of the great northwest, and intimately associated with its growth, though at the time of his death he was at his father's home in San Francisco.

Mr. Partridge was born at Wheeling, West Virginia, on May 13th, 1856, and was educated at the Massachusetts Institute of Technology, in Boston, being a member of the class in mechanical engineering of '76. In 1877 he went to California and took up practical photography, which had been the life-work of his father, A. C. Partridge, at that time so well known in Virginia and Boston, and now with his son in San Francisco. In 1883 he went to Portland, Oregon, and became one of the best-known photographers of the northwest; his Alaskan views are among the finest made of that region, and were among the first put upon the market. In 1888 he disposed of his studio in Portland, and entered the house of his brother, Sam. C. Partridge, a dealer in photo. goods in San Francisco, and with unremitting energy and ambition built up a prosperous business at that place.

An Aftermath from Buffalo.—We have received several communications in relation to the Inglis exhibition at the Buffalo convention. We regret that they are too personal for publication; however, our greatest regret is that a state of affairs should have arisen making such complaints possible. In all competitive exhibitions the greatest spirit of fairness should exist, and equal rights be granted to the small exhibitors as well as the wealthy corporations. The American idea, "May the best man win," should be the watchword. The moment any parties stoop to such tactics as were used at the late convention, the usefulness of the offending parties is about done.

World's Fair Note.—The photographers of the country want a separate building at the exposition, adapted to a magnificent photographic exhibit collected from the whole world. A committee has been appointed to confer with the exposition officials upon the subject.

Professional Enterprise.—As an illustration of the enterprising spirit of the American photographer,—who, by the way, is not an wit behind his British cousin,—we reproduce following *bona fide* advertisement:

"Baby Day at Snook's Gallery. On Wednesday, August 26th, we will make One Cabinet Picture of your Baby, under 18 Months, Free! No Charges Whatever. You bring the baby, and we will present you with its picture. This Is No Catch, No Humbug! Every one can have a picture of their baby! We want 500 on that date. Remember, it Costs you Nothing. For the Prettiest Baby we will make a Pastel Portrait. To be decided by our patrons during the next Thirty Days. Geo. J. Snook, Opp. Post Office, Akron, Ohio."

A new photographic society has been organized in Montana under the name of "The Helena Camera Club." The officers of the club are: Leslie Selgrove, president; Geo. C. Sharpe, vice-president; Arthur G. Lombard, secretary and treasurer. All indications point towards an active and flourishing club. One of the first resolves of the new club was to compete for the Bausch & Lomb prizes. The club will also take a prominent part in the entertainment of the members of the Montana Teachers' Convention, which is to meet in Helena in the near future. We wish the new club success.

The Shah of Persia is developing into a kodak fiend, and his courtiers all say that his pictures are wonderful successes. It wouldn't be healthy for them to say anything else.

Photographic Hints and Formulæ.

Locating Brain Tumors by Photography.—According to an eminent surgeon, the location of tumors on the brain can now be detected by instantaneous photography. A tumor on the brain causes violent spasms by pressing on a nerve centre, and while the patient is in the midst of a spasmodic attack he is photographed, the nerves affected determined by the contortions shown on the picture, and the tumor located. Several successful experiments of this kind have already been conducted.—*Chicago Times.*

Orthochromatic photography has been successfully applied to wet plates for some time past by an Austrian photographer of note, M. Jaffe, who sensitized his plates to yellow rays by coating with eosine:

Eosine	2.2 grams.
Alcohol (95 per cent.)	250 c.c.
Cadmium bromide	47 grams.

Filtered, after which

Sulphuric ether	250 c.c.

is added to

Collodion (2 per cent.)	1000 c.c.

The sensitized solution is made up of silver nitrate, concentrated nitric acid, and water; and the developer, an iron one, contains also alcohol and sulphuric acid. The required time is about half as long again as for an ordinary collodion plate.

Bromide of Cadmium Intensifier.—H. F. writes: "A fortnight ago, among the queries was one by 'Experimenter' on the bromide of cadmium intensifier. I have since come across this method under the heading of 'A New Intensifier.' The following directions were given: Gelatine negatives, after being thoroughly washed, are soaked for five minutes in equal parts of liquor ammonia (880) and water, then washed thoroughly and immersed in an alcoholic solution of bromide of cadmium, one part of the latter to 1000 parts of the spirit. The negative becomes an intense black color, the intensity of which is governed by the duration of the soaking in the ammonia solution. I find that five minutes' soaking in the ammonia sufficiently intensifies a very thin negative, and the duration of the soaking can be regulated without great difficulty after a few experiments."—*Photography.*

Yellowing of Negatives Developed with Hydrochinone.—Despite the oft-repeated assertion that hydrochinone will not stain the film, instances of yellowing when this developing agent is used are by no means uncommon. Until quite recently we have been unable to find any certain remedy for the trouble, but in a recent issue of *Progres Photographique* we found an explanation and a remedy. The statement is made that the discoloration occurs only in the fixing bath, and only when the bath is in an alkaline condition. This statement, which we have substantiated by numerous experiments, suggests the remedy,—the use of an acid treatment after development and before fixing. A weak solution of tartaric acid, about one hundred and fifty grains to one quart of water, has been found to work the best in practice. After development the plate is washed as usual, and then immersed in the acid bath for a minute before fixing. So far as we have been able to test, the remedy it has proved efficacious.—*American Amateur Photographer.*

Uranium Intensifier.—Dissolve uranium nitrate, 1 gram; potassium ferricyanide, 1 gram; glacial acetic acid, 20 grams; water, 200 grams. The negative must be well washed before using this intensifier, which is fairly powerful; and when sufficiently intensified must be washed for fifteen minutes, not more, as the deposit gradually washes away. This method of intensifying is very useful when local intensification has to be effected. If too great density is obtained, it can be removed locally or generally by dilute liquor ammonia.—*N. W., in Photography.*

Photographs on China.—Fashion has renewed public interest in the placing of photographs upon china. All these little soft brown pictures which have appeared on watch-cases, dials, and which are now placed on china, are simply carbon pictures. A carbon picture is a gelatine film made sensitive with bichromate of potash. The result of light upon it is different from the result upon prepared photograph paper, in that the paper is changed in color by light, whereas a carbon picture or gelatine film is hardened by the action of light. Thus a picture made by this process grows harder and more lastingly indelible the longer it is exposed.

It costs $7.00 to put a photograph of one's sweetheart or lover on a cup; $10.00 on a plate.

Painting Lantern Slides.—*Youga's Art Folio* gives the following directions for painting on glass,—*i. e.*, making colored lantern slides: Use silicine colors for painting on glass. The brilliancy and transparency of silicine colors are effected by the use of silicine medium with which the prepared colors are mixed. The work is, as it were, vitrified on. Allowing for this to dry, a wash or coating of the silicine glass will give it a good finish. If you have water-colors, the same effect may be had by the use of oxgall.

Photographs in Natural Colors once more.—"A new patented process for producing photographs in natural colors has been brought under our notice," says the *Pall Mall Gazette*, "by the Art Color Photograph Company. No claim is put forward to the production of the colors on the negative,—a feat which, if not impossible, has never yet been accomplished. What the negative does is to portray the colors of the original in their proper relative gradation of tone, which is a development of the 'orthochromatic' process, as photographers term it. Having obtained the negative, the next step is to get a print. This print is made to undergo a special treatment, mechanical in its nature, by which it receives its required colors. Only the primary colors are used, every shade and gradation of tone being secured by the negative. No artistic skill is needed to apply the colors, but how it is done is not explained. The final step consists in the fixing of the prints by which the colors are rendered absolutely permanent. In proof of this claim we were shown a reproduction of Meissonier's 'Retreat from Moscow,' which, we were informed, was executed five years ago. The prints are made waterproof in the process, and can be mounted on paper, card, glass, opal, or other material. Besides the specimen mentioned we have seen reproductions from the National Gallery, and photographs of living celebrities, including one of Cardinal Manning in his robes, the bright color of which is the invention of a French photographer, M. Victor Mathieu. The means being mechanical, the cost is but slightly in excess of the ordinary monochrome prints." It will be remembered that an exhibit of specimens of this work at the late Crystal Palace Exhibition.—*Photography*.

A New Photographic Glass.—A new Swedish glass is claimed to have important advantages for microscope and other fine lenses, giving greatly increased power. The chief improvement over other fine glass consists in the addition of phosphate and chlorine, which impart absolute transparency, great hardness, and susceptibility of the finest polish.

Hand Camera Snap Shots.

No Kodaks There.—Says an Asbury Park special of July 27th: Founder Bradley, of Asbury Park, has issued an edict against the use of kodaks on the beach at that place. Orders have been given the police to arrest on sight every active snapshotter caught in action. If they press the button the police will do the rest.

The action has been applauded with shrieks of joy by the ladies. As a matter of fact, the detective-camera business was becoming a regular nuisance. Many estimable young women gave up bathing in the surf for fear their lower limbs would adorn somebody's photograph album. Frivolous young men began to grow offensively personal. Armed with the knowledge the kodak gave them, they would discuss the pleasant features of Asbury Park in a most improper manner.

Until Bradley issued his decree against the kodak true love on the beach used to be snapshotted to the especial annoyance of the contracting parties and the extreme diversion of their friends.

It is believed that Mr. Bradley has taken action against the kodaks in order to propitiate the women who howled at him for forcing them to wear stockings in the water. Several of them wanted to know whether he wouldn't require them to wear high-buttoned shoes, and one haughty belle even said in a fine spirit of sarcasm that she supposed the mayor would next order ladies to bathe in sealskin sacques and ear-muffs.

The Hand Cameraist in France.—The amateur photographer, with his prying little "kodak," sometimes makes himself decidedly obnoxious to people who don't care to have themselves portrayed for the edification or criticism of strangers, but in this country there has seemed to be no defence against his obtrusive enterprise. An incident which recently occurred in France may, however, serve as a warning to the fraternity elsewhere. An American by the name of Schneider was discovered in the act of taking photographs of the forts in the neighborhood of Paris. He was promptly pounced upon by the gendarmes, and upon trial was sentenced to five years' imprisonment and a fine of three thousand francs. The effect of this chastisement will probably be to disgust one enthusiast with the cultivation of amateur art.

Photographic Scissors and Paste.

Photographing a Kaiser.—Though not unacquainted with the "art" of photographing royalty, Mr. Russell, of Baker Street, has had a few new experiences on his recent trip to Berlin, where he went for the special purpose of supplying this country, on the eve of the visit of the Emperor and Empress of Germany, with the likeness of the august visitors. Everything had gone quite smoothly; the permission to take the photographs had been readily given, and when Mr. Russell reached Berlin it was intimated to him that the Emperor would be glad to "sit" next morning at eight o'clock, an hour which neither to prince nor pauper in Germany is at all as unearthly as it may appear to our minds.

Great, however, was Mr. Russell's consternation when, on having missed the first train that leaves Berlin for Potsdam, he reached the latter place a few minutes after the appointed hour, and was bullied by the imperial officials as only German officials know how to bully. "How dared he be late? Did he not know that an Emperor could not be kept waiting? What did he mean?" etc., *ad nauseam*. The Emperor himself, however, did not share the sentiments of his satellites, and came out as soon as the camera was fixed, replying to Mr. Russell's apologies with a cheery "No matter, no matter at all!" and in excellent English.

The Emperor was then photographed in seven different positions, in a naval and a military uniform. Mr. Russell was charmed, artistically, with the young Emperor's fine physique, and did not even notice the defect of the left arm till, while the Emperor was changing his uniform, the "dresser" came out and gave him a hint to the effect that it would perhaps be as well to cause the Emperor to "pose" so as to bring the left arm which is considerably shorter than the right, as little in evidence as possible.

After waiting four days, Mr. Russell was also allowed to photograph the Empress in one of the magnificent staterooms at the Potsdam palace.

It was by the Empress's own desire that a large vase of flowers was brought in from another room and placed beside her to make the photograph more picturesque. A magnificent piece of embroidery is seen in one of the pictures, negligently thrown over a chair. This is a table-cover of a most beautiful design in needlework, also arranged to

heighten the effect of the picture. In one photograph the Empress wears a semi-court costume; in the other an elegant light evening dress.—*Pall Mall Gazette.*

Why People Do Not Buy Photographs.—Sir: I noticed recently in your journal sundry complaints of bad business among photographers,—in other words, that the public are ceasing to buy their productions. I have nothing to do with the photographic trade, but am merely one of the public, having been all my life a buyer of photographs whenever I have seen any to please me.

The complaint attracted my attention, because it occurred to me that I also had of late years, in a measure, ceased to be a buyer without well knowing why. On casting about for the reason, I reflected: "Well, you have six cumbrous albums of *cartes-de-visite* and cabinets that nobody looks at; as many ponderous scrap-books, with leaves cockled and untidy; all these full of photographs, yellowed and fading, and really there is not room in the house for more."

Now, if these photographs had been permanent, printed on thick paper, with a decent white or toned margin, requiring no mounting, and, above all, made so as not to curl up, the whole might be kept in a handy portfolio, when it would be a pleasure to turn them over, pass them from hand to hand with friends, and easy to weed them out, exchange them, and add to their number, without filling the house with albums.

When we get photographs as lasting, as easy to store away and to handle, as engravings, they will be welcome again to—Yours, etc.,

June 29th, 1891. E. J. W.

[We copy above communication from our British contemporary; it is well worthy of the serious attention of both professional and amateur. We have repeatedly called the attention of the craft at large to this great desideratum. By reference to Vol. XI., pp. 211–213, AMERICAN JOURNAL OF PHOTOGRAPHY (August, 1890), it will be seen that we went over the ground pretty thoroughly, and we are pleased to find that the matter is attracting renewed attention abroad.—ED.]

Some Interesting Photographs.—At the conversazione of the Royal Society recently, Professor Norman Lockyer exhibited first a group of sun-spots, photographed in India, as they were passing over the solar surface, and showing a succession of remarkable changes, suggestive of terrestial cyclones, as they traversed the visible face of the sun. But possibly the greatest curiosity was awakened by the Professor's photographs of the temples at Karnak and Edfou, in Upper

Egypt. There is now a theory that these famous structures were oriented in such fashion that the rays of the sun at six o'clock, A.M. and P.M., on June 21st, traversed the whole central aisle of these edifices,—in other words, that at least six thousand years ago there was in Egypt a people sufficiently advanced to know astronomically the true length of the year, and to determine with precision such data as they needed for their daily sacrifices. The same kind of astronomical motive is supposed to have prevailed with the builders of the huge monoliths of Stonehenge. At the instance of Mr. Norman Lockyer, the Egyptian government is sending observers to Karnak and Edfou to make observations of the shadows which the lines of the temple will make with its principal axis, and as the motion of the sun in the heavens is known, it may be possible to argue backwards from these data to the probable age of the temples. Similar observations are to be made on the Salisbury plain, with the curious result perhaps of learning from the sun's motion in the ecliptic how long ago it is since the stones of that huge place of sacrifice were placed in position by a relatively advanced race of people inhabiting these islands thousands of years ago.—*Photography.*

Unique Specimens of the Bookbinder's Art.—The *British Bookmaker*, in a late number, mentions as among the curiosities of binding, that at the Vatican in Rome is to be seen a Latin manuscript Bible, bound in the mantle once worn by King Abgarus, the friend of Jesus [?—Ed. A. J. of P.]. A Greek copy of Aurelius's "Golden Ass," now in the British Museum at London, is bound in the skin of an ass tanned with the hair on.

A book giving the life history of Jeffrey Hudson, the celebrated dwarf, to be seen in the same museum, is bound in a piece of a silk waistcoat which was formerly worn by King Charles I. Of late the fashion of binding works on anatomy, physiology and kindred subjects in human skin is becoming popular in many European countries. Some take this for an innovation, but history mentions several books bound in human skin as early as the middle of the sixteenth century. At the Bury St. Edmunds Public Library may be found a history of the life and trial of a murderer, bound in his own skin.

The French revolutionists, who seemed to delight in the fact that they were marking an epoch in the history of mankind, revived the human-skin bookbinding fad of the sixteenth century, and took great pleasure in presenting some brother revolutionist with copies of Volney and Voltaire done up in the cuticle of some enemy. The writer owns some evidences of a bookbinder's pleasantries in copies of Bacon's work bound in pig's skin (bacon rind), and Fox's historical works done up in the skin of a sly reynard.—*Paper and Press.*

A Determined Photographer.—Up in the mountains, about thirty miles from Chihuahua, is an old Catholic mission. This church is away from the usual haunts of white men, and all the members are Indians.

The church is closely guarded, and no white man except a priest has ever been permitted to enter its sacred precincts by the Indians. A party of tourists from Chihuahua came to the old village for the purpose of seeing the sights and taking pictures of the Indians and old buildings.

In the party was a young man from Illinois named William Morrison. He determined at all hazards to see inside the church, and at once set about laying his plans. He found that a number of old Indians were constantly on guard, each being relieved at stated intervals. He also found that the door was kept locked, and the key was kept at the priest's house, but that the windows could be raised by a little effort. He prepared himself with a camera, with a flash-light attachment, and a bottle of avua arduente, or Mexican whiskey, in which he placed enough morphine to produce sleep. He then sauntered along to where the old guardian was sitting, and engaged his attention. The conversation was limited, but the bottle spoke for itself, and it was not difficult to induce the old man to take two or three drinks. Morrison then passed on, but soon returned and found the Indian fast asleep.

He quickly forced a window and gained entrance to the church. The interior was very common, but upon the altar was a small statue of the Virgin, which Morrison at first supposed to be gilt, but as it was the only thing in the place that had the appearance of being of value, and as it had a peculiar lustre, he gave it a closer examination. The statue was a foot high, and when he took hold of it he could barely move it. Struck with its extraordinary weight, he lifted it, and found that it weighed not less than one hundred and fifty pounds. This convinced him that it was of pure gold, and he took a flash-light picture of the image and altar, and made his exit.

He told his story to the other members of the party, and they concluded to get the facts from the old priest, who was much surprised when asked about the golden statue of the Virgin, and at first refused to talk; but when convinced that it had been seen, he said that it was pure gold, and had been made from the ornaments and idols of the old Aztecs when they were first converted.

He further advised the party not to let it be known that they had seen the statue, for the Indians might take extreme measures to resent the impertinence and prevent their secret becoming known outside the town.

THE PHOTOGRAPHIC SOCIETY OF JAPAN.

A MEETING of the Photographic Society of Japan was held in the Masonic Hall, No. 60, Yokohama, on Friday, June 18th. From a little after midday there was an exhibition of prints on the bromide paper that Mr. Cocking had presented to the society a few months ago. Mr. Cocking offered three prizes at the time that he presented the paper, and these were awarded by ballot of members and the public on Friday. Mr. K. Ogura, amateur photographer, won the first prize, Mr. A. Futami, professional, the second. For the third prize there were so many prints that received an equal number of votes that no decision could be come to at the time of the meeting. It was decided to leave this matter to Mr. Cocking. The members of committee exhibited, but did not compete for prizes, and the work of Mr. C. D. West was particularly admired. There was a set of micro-photographs by Mr. I. Isawa that were considered to show great technical merit. Flash-light photographs taken at various meetings of the society were shown, and some by Mr. Kajima were particularly good.

Mr. K. Ogawa showed a large photograph of the interior of the Russian cathedral in Tokio. This, as a sample of interior photography, always very difficult, and also as a sample of collotype work, is as fine as anything of the kind that we have seen.

Mr. Cocking showed a large number of "Kodak" cameras. These instruments are highly ingenious, and are excellently made. The larger sizes, which have, we believe, reached Japan for the first time, relieve the instrument from the stigma of being only a toy,

In the evening there was a regular meeting of the society, when Capt. Kenderdine occupied the chair, and the following gentlemen were elected members of the society: Mr. Allan Owston, Mr. A. W. Forbes, Mr. George Brinkworth, Mr. T. H. Tanner, Mr. A. T. Watson, and Mr. J. H. Brooke.

Mr. W. K. Burton gave a demonstration of a modified silver printing process. Briefly put, the process consisted in making one solution of nitrate of silver, and another of "salt" (preferably chloride of ammonium), citric acid, carbonate of soda, and a little gelatine. The solutions are warmed and mixed, when an "emulsion" that is immediately ready for application to any surface that can be sensitized, results. The process of making the emulsion, sensitizing the paper, and toning prints by Clark's platinum method, were shown. Specimens of the finished prints were also shown.

Mr. Burton said that the process had not yet been long enough in use to know whether it had any real advantages, but the possible advantages that he saw were that a single solution that would keep fairly well could be prepared in a few minutes, and was at once applicable to any surface, whereas in all other silver printing-out processes there were either two operations, that of salting and that of sensitizing, or a washed emulsion, which was comparatively troublesome to make, had to be used. The process was a cheap one.

Mr. West thought the saving of trouble was not great. So far as he could see, the advantage of the process was that it made it possible to get a blacker color—one more nearly approaching to an "engraving black"—than by the ordinary process.

Mr. Kajima made two exposures of the meeting by flash-light.

The proceedings ended with a vote of thanks to the chairman.

The hall was kindly lent to the society by Mr. O. Keil.

M. B. BRADY'S STOLEN LENS.

THAT the manufacturer's record of the sale of his lenses by number of the instrument and name of purchaser does not always prevent the sale of a stolen instrument is clearly established by the facts in Brady's case.

On the 29th of January last a Dallmeyer Rapid Rectilinear Lens, 21 x 25, No. 44338, was stolen from the gallery of M. B. Brady, in Washington city. The house from which it had been purchased, and the trade generally, were immediately notified of the loss. About the middle of February the stolen instrument was offered to a dealer on Broome Street, this city, for $150 less than its market value. The dealer immediately took the instrument to the office of the agents of the make of lenses of whom it had been purchased, and it was at once identified as belonging to Brady; and yet the agents allowed the stolen property to be carried away, If for any reason or from any cause the agents did not wish to act in the matter, they might at least have notified the police.

Had they done so, it would have been recovered by the owner. But they did not, and Mr. Brady now regards it as lost beyond recovery.

Washington, D. C., June 27th, 1891. M. B. BRADY.

Classicus—"In the days of mythology there were naiads in every stream and nymphs in every grove." **Modernus**—"Just think of it, and not an amateur photographer in all the world."

In the Twilight Hour.

THE modern teacher of Christianity believes that Christ came not merely to save individual souls—he believes that intensely—but also to reconstruct human society upon a Christian basis. The Kingdom of God occupies a place in Christian thought that it has scarcely received before. We realize more and more how dependent the individual is upon his environment. We are not less conscious of the importance of individual regeneration, holding, indeed, with Horace Bushnell, that "the soul of all improvement is the improvement of the soul." But, on the other hand, the very highest improvement of the soul is scarcely possible except in a favorable social environment.—*Rev. Hugh Price Hughes, D.D.*

THOUGH tropic lives seduce us, charm us, sing us to sleep with siren voices, whisper to us like the murmur of soft breezes among the vines, woo us by a thousand enchanting notes to relax the moral fibre and weaken the force of purpose and resolution, let us not yield. Rather, like Ulysses, let us lash ourselves to the masts, and stop our ears as we sail by their islands. In the stern, cold north are the hidden forces that nourish virtue and keep alive the sublime hopes of man. There are the great achievements wrought on God's anvil, beaten out with a strong hammer by strong arms. In that region of character lie the great heroisms and aspirations of mankind. There are the spaces of celestial beauty wrested from Chaos and Old Night; and under the northern heavens, sparkling with millions of stars, shines the great spiritual constellation palpitating with the meaning and purpose of life—obedience, truth, love, faith, self-sacrifice, and labor.—*Christian Register.*

CHRISTIANITY gave mankind the idea and word humanity.

HOWEVER large you make the circle of a woman's life, home must be its centre.
—*A. P. Gifford.*

THE Bible has withstood assaults made upon it hitherto, and we may have confidence in the old Book yet. The most daring scholarship has not attempted to question the doctrines on which the Christian world rests its hope, or to prove the Book an unsafe guide for faith and action. Men who startle us by what we deem an iconoclastic spirit nevertheless profess reverence and love for it, and their acceptance of and love to Christ none who know them question. They may be mistaken in some of their conclusions, but the great need just now is patience. "The grass withereth and the flower thereof passeth away, but the word of the Lord abideth forever."—*Christian Inquirer.*

IT IS said that gardeners sometimes, when they would bring a rose to richer flowering, deprive it for a season of light and moisture. Silent and dark it stands, dropping one fading leaf after another, and seeming to go patiently down to death. But when every leaf is dropped, and the plant stands stripped to the uttermost, a new life is even then working in the buds, from which shall spring a tenderer foliage and a brighter wealth of flowers. So, often in celestial gardening, every leaf of earthly joy must drop before a new and divine bloom visits the soul.—*Harriet Beecher Stowe.*

"STRANGERS!" Oh, it is a sacred word! Be kind to them. Their homes may be afar, their hearts may be broken, and a kind deed, a kind word to them may be like dew to a fainting flower, a flash of heavenly light into a dark chamber.—*Charles Wadsworth.*

THAT which weakens one's powers or dwarfs his spiritual nature can never be sanctioned as an appropriate amusement. The physical life, the intellectual life, the spiritual life, in their subtle relat ons, must enter into the problem of recreations, as must also our brother's good.—*S. H. Virgin.*

Literary and Business Notes.

PHOTOGRAPHIC PRINTING METHODS. By Rev. W. H. Burbank. Third Edition. New York: Scovill & Adams Co. No. 22 of the Scovill Photographic Series.

The author may well congratulate himself on the fact that his work has reached a third edition,—it attests its value. All the various photographic methods are explained, and practical formulæ are given for all processes. In addition an analytical index is given,—a feature which adds greatly to its value. We commend the book to all amateurs who want to get a thorough insight into the mysteries of photographic printing.

PHOTOGRAPHIC REPRODUCTION PROCESSES. By P. C. Duchochois. New York: Scovill & Adams Co. No. 38 of the Scovill Photographic Series.

A new book by P. C. Duchochois, on the production of light impressions without silver salts. This work is of especial interest to engineers and draughtsmen for the reproduction of plans, drawings, etc. In Part II. of this work will be found full instructions in the uranotype and carbon processes, which are well worth the attention of all photographers.

VERZEIGNIRS VON ANTIQUARISCHEN BÜCHERN ÜBER PHOTOGRAPHIE, ETC. Max Harrwitz. Berlin: W. Potsdamer. Str. 41.

A catalogue of photographic literature, collected and for sale by the publisher. Some 286 different titles are indexed, and no doubt contain some valuable and scarce works.

OPTIQUE PHOTOGRAPHIQUE. Nations nécessaires aux Photographes. Étude de l'objectif: Applications Par A. Soret, Agrégé de l'Université, Professeur de Physique au Lycée du Havre. Paris: Gauthier-Villars et Fils, 1891, pp. 132. Illustrated.

Treats of the passage of light through various mediums and openings, and of the construction of lenses, from the simplest down to the most complex. Describes in detail the most approved lenses now in use for portrait, group, landscape, and wide-angle work, especially those of Dallmeyer, Steinheil, Petgral, and Voigtländer, and speaks highly of those recently constructed (1890) by Zeiss at Jena, which are characterized as of very wide angle with a large opening, and consequently extremely rapid for the angle which they embrace. The chapter on the choice of lenses would be useful to those newly entering the field of photographic work.

"PHOTOGRAPHY" ANNUAL, 1891. Iliffe & Son: London.

This is the first annual issued by the publishers of *Photography*, and like most similar works is well crowded with advertisements. The book, however, contains many papers of value and interest. It is profusely illustrated. Several of the illustrations are well known on this side of the water. The reproductions of Prof. Henry's photographs of the moon are especially fine and interesting. The low price (2s.) of the book, together with the profuse illustrations and wealth of matter, easily account for the unprecedented demand for the work throughout the United Kingdom.

HANDBUCH DER PHOTOGRAPHIE FÜR AMATEURE UND TOURISTEN. Major G. Pizzighelli. W. Knapp: Halle a. S. A second edition of Volume I. of this standard German work.

It deals exclusively with photographic apparatus, and is illustrated with no less than 531 wood-cuts. The first edition, published in 1886, consisted of 436 royal octavo pages, but so great have been the advances and modifications of photographic apparatus within the last five years, that the present volume counts an addition of no less than fifty pages, making 486 pages in all. The succeeding volumes will deal with photographic processes and the practical applications of photography.

AUSFÜHRLICHES HANDBUCH DER PHOTOGRAPHIE. Second edition, Part 3 of Volume I. William Knapp: Halle, a. S.—"Die Photographie bei Künstlichem Licht" (Photography by Artificial Light). Dr. Josef Maria Eder. Embellished with six plates and eighty wood-cuts, printed in the text. This part, contain-

ing pages 451–580, completes the reprint of Volume I. of Dr. Eder's work.

We mentioned this work at length in our June number (p. 290), and can but reiterate what we then stated,—viz., that we know of no work within the scope of photographic literature which is more exhaustive or encyclopædic in its character.

GUIDE PRATIQUE POUR L'EMPLOI DU PAPIER ALBUMINÉ. Par L. Mathet (Chemiste, Pharmacien de 1st classe). Paris: Société Générale de Èditions, 24 Boulevard Saint Germain. Pp. 78. Four a bumen prints and cuts accompanying the text.

We take great pleasure in commending this excellent treatise to all readers of French who may be interested in the photographic art. The work is intended for the amateur, and gives him a clear, practical guidance to the art of making silver prints on albumenized paper, from the silvering through the toning and fixing to he final washing, trimming, and mounting and burnishing. It furnishes all necessary information, without taxing the reader with unnecessary outside technical details.

WE NOTE in our welcome exchange, *Revue de Photographie Genève*, a fine phototype of our countryman, H. Stanley; the negative by Mme. E. Peel, a distinguished amateur of Geneva, the reproduction from the renowned establishment of E. Thévoz & Co. The negative was made last September, about noon, on the Terrase de Sicheron; lense, Suter B; stop, 5; exposure, two seconds; development, hydrochinone.

THE twenty-first annual calendar (1891–92) of Wilson College for Women, at Chambersburg, Penna., has been received, and is profusely illustrated with half-tone reproductions from photographs taken by the pupils in the art department. The subjects, besides interior and exterior views of the college and the surrounding scenery, show some pleasing groups of the students. In one of the happiest scenes, "The Bride's Chamber: A Syrian Wedding," a fine blitz-pulver effect, we recognize the work of our friend, Dr. M. W. Strealey, of Chambersburg.

RECENT PATENTS.

ISSUE OF AUGUST 11TH, 1891.

457,712—Photographing; I. H. Hamburger, assignor to Pyrophoto Company, New York, N. Y.

ISSUE OF AUGUST 18TH, 1891.

457,817—Preparing Photograph Plates; O. Moh, Gorlitz, Germany.

458,128—Photographic Camera; C. Mills, assignor to E. & H. T. Anthony & Company, New York, N. Y.

457,857—Photographic Camera; D. J. Tapley, Newtown, N. Y.

A German Advertisement.—Wanted, a young lady to take charge of reception-room; must be willing to make herself generally useful, assist with the housework when not engaged in studio, and mind the children in the evening.

P. S.—One who has some knowledge of retouching preferred.